

speculative. It is commonly considered a benign entity and discussed as such.

In the two patients reported upon herein, careful gross and microscopic examinations were made, the disease was deemed benign and, therefore, presumably the patients were cured or at least assured of a reasonable prognosis by adequate surgical treatment. One is dead from a reticulum cell sarcoma which in retrospect was in part (or entirely) the original process. The other patient is now known to have a sarcoma but ultimate evaluation of its relationship to the original retroperitoneal findings must await autopsy.

The fortuitous finding a lymphoma in the second case by scalene biopsy prompts us to recommend that such biopsy be a part of the evaluation of all patients with suspected retroperitoneal fibrosis.

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An Unusual "Thyroid" Nodule "Cold" to Scintiscan

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RADIOISOTOPE SCINTISCANNING is widely employed in the clinical evaluation of thyroid nodules. When a nonfunctioning ("cold") solitary nodule is demonstrated, potential thyroid malignant disease is suspected. The incidence of confirmed carcinoma in such cold nodules varies and has been reported to be as high as 55 per cent.²

Various benign lesions will result in the appearance of a cold nodule on scintiscanning. These include cystic changes, degeneration, necrosis, hemorrhage and nonfunctioning adenomas. In the following case report, another type of benign lesion is described, which produced a solitary cold area on thyroid scintiscan.

Report of a Case

A 58-year-old Caucasian woman was admitted to the University of California San Francisco Medical Center on August 2, 1964. Except for intermittent joint discomfort attributed to arthritis, she had been in apparent good health until June 1964. At that time she had noted sudden onset of severe pain in the region of the right groin. Two weeks later roentgenograms of the right femur revealed an osteolytic lesion in the neck and another in the shaft. A metastatic carcinoma was suspected and the patient was admitted to another hospital for further study on July 13, 1964.

On the initial admission, mild hypertension was noted (blood pressure 170/90 mm of mercury). The thyroid gland was diffusely enlarged. The right lobe was larger than the left and it contained a 2 x 2 cm mass in the midportion. Moderate kyphoscoliosis was observed and pain was elicited on movement of right hip. The serum calcium level was

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Submitted February 25, 1965.

reported as 15.3 mg per 100 ml and serum phosphorus 3.3 mg per 100 ml. A biopsy of one of the lesions in the proximal right femur resulted in a histologic diagnosis of osteitis fibrosa cystica ("brown tumor" of hyperparathyroidism).

On admission of the patient to the University of California San Francisco Medical Center, roentgen studies were repeated. The well defined lytic lesions involving the proximal right femur were again noted (Figure 1). Generalized bony demineralization was also present and an anterosuperior mediastinal soft-tissue mass was suggestive of substernal extension of the palpable goiter (Figure 2).

Thyroid uptake of radioiodine was 22 per cent in 24 hours. The scintiscan showed an enlarged gland with function extending down to the sternal notch when the patient's neck was extended. In the midportion of the right lobe, function was diminished in an area of 3×4 cm (Figure 3). Arteriographic studies of the aortic arch on August 7, 1964 showed enlargement of the right inferior thyroidal artery. The branches led to and surrounded

the nodule in the midportion of the right lobe, but without demonstrable "tumor blush" (Figure 4).

Operation was carried out August 13, 1964. The mass, which was $4 \times 5 \times 3.5$ cm and weighed 34 grams, occupied the midportion of the right lobe. It was a parathyroid adenoma. Smaller parathyroid adenomas were located at each inferior pole of the thyroid gland. The entire right lobe and the upper and lower poles of the left lobe were removed. The posterior view of the excised specimen, with the largest adenoma transected for better exposure, is shown in Figure 5. The histologic pattern of the tissue within the largest nodule is shown in Figure 6. No abnormal thyroid tissue was seen in multiple sections of the excised gland.



Figure 1. Anteroposterior view of the proximal right femur showing a lytic defect in the neck and a second lesion in the midshaft. The margins are smoothly outlined and no cortical reactive new bone is identified.



Figure 2. The soft-tissue mass is seen in the upper right mediastinal area, with displacement of the air-filled trachea to the left.

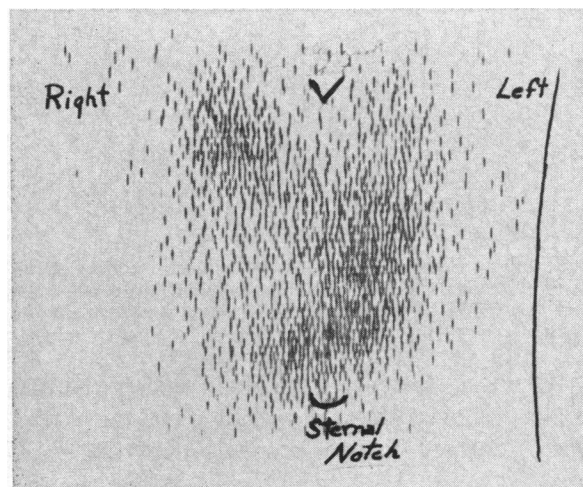


Figure 3. Scintiscan of the thyroid gland showing a 3×4 cm area of diminished concentration of radioactivity over the palpable, localized enlargement on the right side. Tissue that concentrates radioiodine extends to the level of the sternal notch when the neck is extended for the scintiscan.

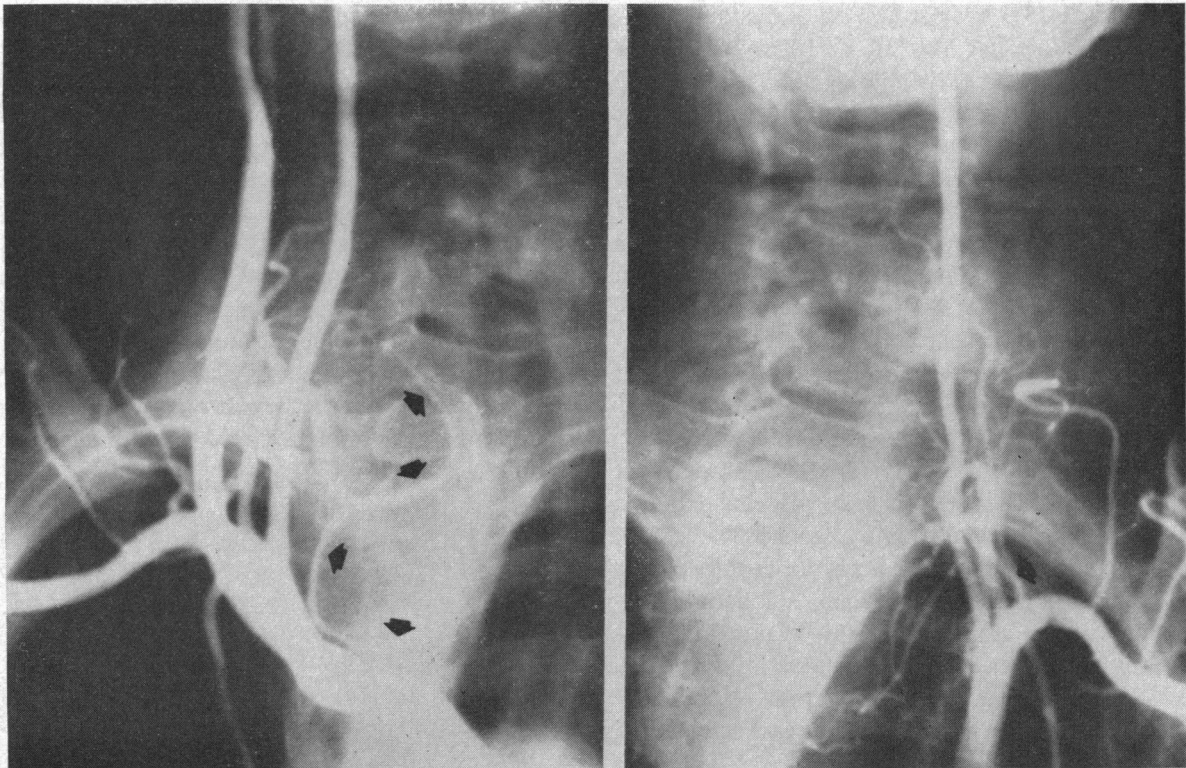


Figure 4. Arteriographic studies of branches of the aortic arch. Film at left shows enlargement of the inferior thyroid artery on the right side. Peripheral branches (arrows) surround the parathyroid adenoma but no "tumor blush" was seen. For comparison, the film at the right shows the normal sized inferior thyroid artery on the left (arrow near its origin).

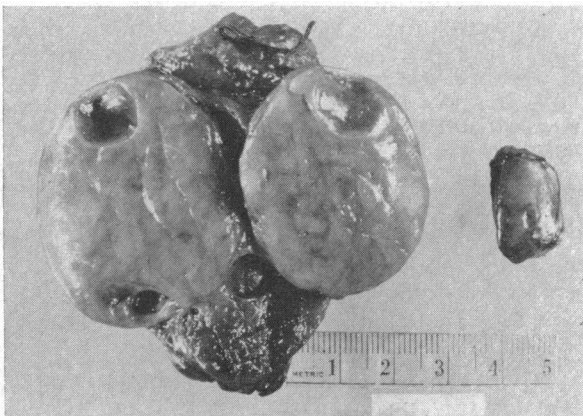


Figure 5. Posterior view of the excised surgical specimen. The parathyroid adenoma has been transected for exposure. One of the smaller adenomas is shown on the right.

Chemical elements in the blood quickly reverted to normal levels after the operation and the patient was discharged from the hospital August 29, 1964.

Discussion

Any lesion represented on the scintiscan as a cold nodule within the functioning area of a thyroid gland is usually considered as thyroidal in origin.

The appearance of a cold nodule on the scan increases the probability of carcinoma, but it may also be the result of a variety of benign lesions.

In the present case hyperparathyroidism had been established before the surgical procedure. The diagnosis was based on the lytic lesions in the right femur and the characteristic changes in chemical factors in the blood. A coexistent thyroid carcinoma, nevertheless, had still been considered a possibility. The size, the substernal extension and the scintiscan pattern of the soft tissue mass supported a probability of thyroid rather than parathyroid origin. The incidental finding of thyroid carcinoma in eight previous patients explored surgically for parathyroid adenomas¹ lent credence to the possibility of thyroid carcinoma. The enlarged inferior thyroid artery on the right side, seen angiographically, was similar to such consistent enlargement on the side of the parathyroid adenoma as recently described by State.³ No vascular blush had been noted to support the possible diagnosis of thyroid carcinoma. Biopsy of the frozen section and the final histologic sections confirmed that this mass was a large parathyroid adenoma. A parathyroid

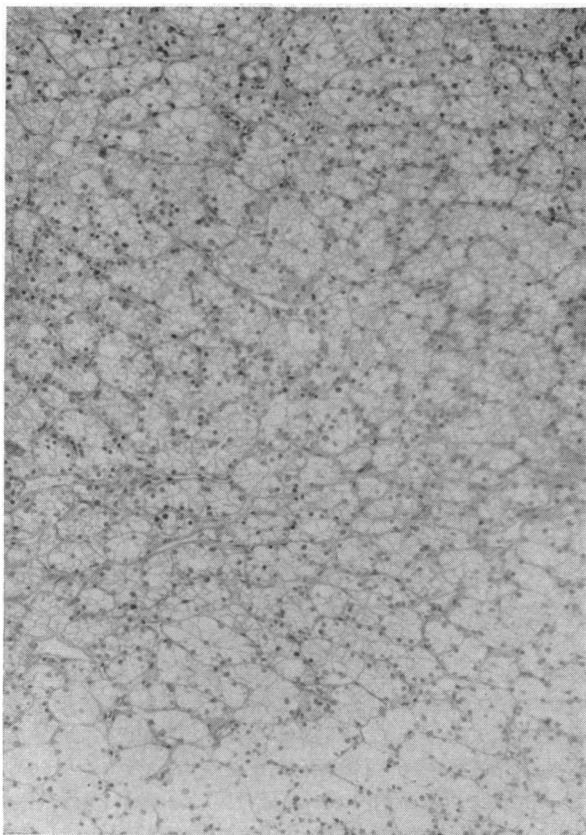


Figure 6. Histologic section of the tissue in the large parathyroid adenoma ($\times 100$). All sections of the large and smaller adenomas showed a similar uniform pattern of primary hyperplasia.

scintiscan with 75-Se selenomethionine was not obtained in this instance. It might have proved the most helpful preoperative diagnostic test in identifying this large cold nodule in the thyroid gland.

Summary

A lesion of unusual type produced a "cold" area within the thyroid gland on a scintiscan study. This lesion proved to be a large parathyroid adenoma rather than the suspected thyroid carcinoma coincident with hyperparathyroidism.

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An Unusual Roentgen Sign in—

Gangrenous Appendicitis

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A CAREFUL CLINICAL EVALUATION of the patient is usually decisive in the diagnosis of acute appendicitis. Rarely is it necessary to depend upon a roentgen study of the abdomen, although in some instances such an examination can be helpful. For example, in acute appendicitis with calculi (enteroliths), or acute appendicitis with abscess formation, the radiological study is frequently confirmatory. A reflex ileus is quite usual with acute appendicitis, as in other intra-abdominal inflammatory conditions. When peritoneal reaction has occurred, there may be blurring of the pro-peritoneal fat line.

Rarely is gas visualized within the appendix. As Samuel⁴ pointed out, with anatomical variations in the position of the cecum, the appendix may represent the highest point of the right half of the colon, and in this location may contain intestinal gas. Hence, even if gas is seen within the appendix, the pathological significance of the phenomenon should be viewed with skepticism if the organ is in the right upper quadrant.

Frimann-Dahl² mentioned that sometimes gas in an inflamed appendix or an abscess is mixed with thick pus and has a "foam-like" appearance on an x-ray film. However, he did not stress that gas within the appendix is a sign of appendiceal disease.

Fisher¹ reported a case of gangrenous appendicitis in which roentgenographic demonstration of a dilated fixed appendix containing gas and a fluid level led to the correct diagnosis before operation. This was the first documented case of appendicitis

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Submitted February 15, 1965.